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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
09/926,089	08/28/2001	Hiroyuki Atarashi	213309US2PCT	3861
22850	7590	10/21/2005	EXAMINER	
OBLON, SPIVAK, MCCLELLAND, MAIER & NEUSTADT, P.C. 1940 DUKE STREET ALEXANDRIA, VA 22314			TORRES, JUAN A	
			ART UNIT	PAPER NUMBER
			2631	

DATE MAILED: 10/21/2005

Please find below and/or attached an Office communication concerning this application or proceeding.

**Office Action Summary**

Application No.

09/926,089

Applicant(s)

ATARASHI ET AL.

Examiner

Juan A. Torres

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-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

**Period for Reply**

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

**Status**

- 1) ☒ Responsive to communication(s) filed on 29 September 2005.
- 2a) ☒ This action is **FINAL**. 2b) ☐ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

**Disposition of Claims**

- 4) ☒ Claim(s) 1-6,9,15-18,21-25,31,36 and 37 is/are pending in the application.
- 4a) Of the above claim(s) \_\_\_\_\_ is/are withdrawn from consideration.
- 5) ☒ Claim(s) 1-6,9,15-18,21-25,31 and 37 is/are allowed.
- 6) ☒ Claim(s) 36 is/are rejected.
- 7) ☐ Claim(s) \_\_\_\_\_ is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

**Application Papers**

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 29 September 2005 is/are: a) ☒ accepted or b) ☐ objected to by the Examiner.  
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).  
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

**Priority under 35 U.S.C. § 119**

- 12) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☒ All b) ☐ Some \* c) ☐ None of:
1. ☒ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
- \* See the attached detailed Office action for a list of the certified copies not received.

**Attachment(s)**

- 1) ☐ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☐ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)  
Paper No(s)/Mail Date \_\_\_\_\_.
- 4) ☐ Interview Summary (PTO-413)  
Paper No(s)/Mail Date. \_\_\_\_\_.
- 5) ☐ Notice of Informal Patent Application (PTO-152)
- 6) ☐ Other: \_\_\_\_\_.

## **DETAILED ACTION**

### ***Drawings***

The modifications to the drawings were received on 09/29/2005. These modifications are accepted by the Examiner.

### ***Specification***

The modifications to the specification were received on 09/29/2005. These modifications are accepted by the Examiner.

### ***Response to Arguments***

Regarding claims 1, 6 and 25:

Applicant's arguments filed on 09/29/2005 have been fully considered and they are persuasive.

Regarding claim 36:

Applicant's arguments filed on 09/29/2005 have been fully considered but they are not persuasive.

The Applicant contends, "neither Papasakellariou nor Sutton teaches or suggests this path search feature which is present in independent Claims 36."

The Examiner disagrees and asserts, that, as indicated in the previous Office action, Papasakellariou discloses a channel estimation part configured to carry out at least one of channel estimation using pilot symbols of a known phase included in a signal received via a multipath propagation path and information symbols (figure 2 block 26 and figure 3 column 6 line 54 to column 7 line 34); and a feedback part configured to feed back the information symbols (figure 3 blocks 42a and 42b column 8 line 43 to

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column 9 line 6 and figure 4 block 62 column 10 line 60 to column 11 line 13), wherein the channel estimation part recursively implements the channel estimation by repeating processes using information symbols decoded after channel estimation and the pilot symbols and implementing a channel estimation using the information symbols fed back via the feedback part in accordance with a timing detected in the pilot symbols (figure 3 blocks 42a and 42b column 8 line 43 to column 9 line 6 and figure 4 block 62 column 10 line 60 to column 11 line 13). Papasakellariou doesn't disclose a path search part configured to carry out at least one of a path search using pilot symbols of a known phase included in a signal received via a multipath propagation path and information symbols; and a feedback part configured to feed back the information symbols, where the path search part recursively implements the path search by repeating processes of implementing a path search using information symbols decoded and the pilot symbols and fed back via the feedback part in accordance with a timing detected in the path search and the pilot symbols. Sutton discloses a path search part configured to carry out at least one of a path search using pilot symbols of a known phase included in a signal received via a multipath propagation path and information symbols (figure 1 column 3 line 37 to column 5 line 7); and a feedback part configured to feed back the information symbols (figure 1 blocks 16 and 18 column 4 line 12 to column 5 line 7), where the path search part recursively implements the path search by repeating processes of implementing a path search using information symbols decoded and the pilot symbols and fed back via the feedback part in accordance with a timing detected in the path search and the pilot symbols (figure 1 blocks 16 and 18 column 4 line 12 to

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column 5 line 7). Papasakellariou and Sutton teachings are analogous art because they are from the same field of endeavor. At the time of the invention it would have been obvious to a person of ordinary skill in the art to integrate the path search structure disclosed by Sutton with the channel estimation disclosed by Papasakellariou. The suggestion/motivation for doing so would have been to minimize the total time for acquisition (Sutton column 2 lines 8-12). Therefore, it would have been obvious to combine Papasakellariou and Sutton to obtain the invention as specified in claim 36

In response to applicant's arguments against the references individually, one cannot show nonobviousness by attacking references individually where the rejections are based on combinations of references. See *In re Keller*, 642 F.2d 413, 208 USPQ 871 (CCPA 1981); *In re Merck & Co.*, 800 F.2d 1091, 231 USPQ 375 (Fed. Cir. 1986).

For these reasons and the reason stated in the previous Office action, the rejection of claim 36 is maintained.

***Allowable Subject Matter***

Claims 1-6, 9, 15-18, 21-25, 31 and 37 are allowed.

The following is a statement of reasons for the indication of allowable subject matter: Claims 1-6, 9, 15-18, 21-25, 31 and 37 are allowed because the references cited fail to teach, as applicant has, a second path search step for detecting respective timings of path components using information symbols derived from a signal demodulated according to the timings detected in a first path search step and pilot symbols of a known phase, as the applicant has claimed.

***Conclusion***

**THIS ACTION IS MADE FINAL.** Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the mailing date of this final action.

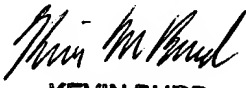
Any inquiry concerning this communication or earlier communications from the examiner should be directed to Juan A. Torres whose telephone number is (571) 272-3119. The examiner can normally be reached on Monday-Friday 9:00 AM - 5:00 PM.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Mohammad H. Ghayour can be reached on (571) 272-3021. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

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Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

Juan Alberto Torres  
10-12-2005

  
**KEVIN BURD**  
**PRIMARY EXAMINER**